

CLAIMS

I claim:

1. A test system comprising:

automated test equipment that includes:

5 a computer that is configured to execute a sequence of test operations for testing a device-under-test, and

an interface circuit, operably coupled to the computer, that is configured to transmit at least one test command of the sequence of test operations,

and

10 a programmable integrated circuit, operably coupled to the automated test equipment and in immediate proximity to the device-under-test, that is configured to receive the test command, and to generate ~~therefrom~~ at least one test signal that is communicated to the device-under-test, based on a programmed set of instructions corresponding to the test command.

15 2. The test system of claim 1, wherein

the programmable integrated circuit includes at least one contact point that is arranged to provide direct contact to the device-under-test for communicating the at least one test signal to the device-under-test.

20 3. The test system of claim 2, wherein

the at least one contact point includes a bonding pad upon which a resilient structure is bonded to facilitate the direct contact to the device-under-test.

25 4. The test system of claim 3, wherein

the resilient structure includes a bonding wire that is bonded to two substantially adjacent points on the programmable integrated circuit.

5. The test system of claim 1, wherein

the automated test equipment is also configured to receive at least one test response from the device-under-test, and

the programmable integrated circuit is also configured to receive a response signal from

- 5 the device-under-test, and to generate therefrom the at least one test response for communication to the automated test equipment, also based on the programmed set of instructions corresponding to the test command.

6. The test system of claim 1, further including

- 10 a probe card, upon which the programmable integrated circuit is mounted, that facilitates coupling of the programmable integrated circuit to the automated test equipment.

7. The test system of claim 6, wherein

the probe card is configured to provide for the mounting of a plurality of programmable integrated circuits, thereby facilitating simultaneous testing of a plurality of devices-under-test.

8. The test system of claim 1, wherein

the interface circuit is configured to use a first bandwidth to transmit the at least one test command to the programmable integrated circuit, and

20 the programmable integrated circuit is configured to use a second bandwidth that is larger than the first bandwidth to communicate the at least one test signal to the device-under-test.

9. The test system of claim 1, wherein

the device-under-test includes a memory device.

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10. The test system of claim 1, wherein

the at least one test command is a subroutine call, and

the programmable integrated circuit is configured to generate the at least one test signal by executing a subroutine corresponding to the subroutine call.

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11. An integrated circuit for testing a device-under-test comprising:
a programmable component that is configured to receive test commands from a test
system, and to provide therefrom test signals, based on a programmed set of instructions, and
5 a plurality of contact points that are arranged to provide direct contact with the device-
under-test for communicating the test signals to the device-under-test.
12. The integrated circuit of claim 11, wherein
each of the plurality of contact points includes a bonding pad upon which a resilient
10 structure is bonded to facilitate a direct contact to the device-under-test.
13. The integrated circuit of claim 12, wherein
the resilient structure includes a bonding wire that is bonded to two substantially adjacent
points on the programmable integrated circuit.
14. The integrated circuit of claim 11, further including
other components that are configured to condition the test signals prior to communicating
the signals to the device-under-test.
- 20 15. The integrated circuit of claim 11, wherein
the programmable component is further configured to receive a response signal from the
device-under-test, and to generate therefrom the at least one test response for communication to
the test system, also based on the programmed set of instructions corresponding to the test
commands.
- 25 16. The integrated circuit of claim 15, further including
other components that are configured to process the response signal prior to
communicating the response signal to the programmable component.

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17. A method of testing, comprising:

programming an automated test equipment to execute a sequence of test operations for testing a device-under-test via a transmission of at least one test command to a programmable integrated circuit,

programming the programmable integrated circuit to receive the test command, and to generate therefrom at least one test signal, and

placing the programmable integrated circuit in proximity to the device-under-test, to provide a direct communication of the test signal to the device-under-test.

10 18. The method of claim 17, further including

programming other programmable integrated circuits to receive the test command, and to generate therefrom at least one corresponding test signal, and

placing the other programmable integrated circuits in proximity to the other devices-under-test, to provide a direct communication of the corresponding test signal to the other devices-under-test, thereby facilitating simultaneous testing of the devices-under-test.